

Environmental Impact Assessment Ordinance (Cap. 499)

Environmental Impact Assessment

Siu Ho Wan Water Treatment Works Extension

Purpose

This paper presents the key findings and recommendations of the Environmental Impact Assessment (EIA) Report for the Siu Ho Wan Water Treatment Works Extension (hereafter known as the Project), submitted under section 6(2) of the Environmental Impact Assessment Ordinance (EIAO). Water Supplies Department (WSD) and their consultants will make a presentation. Comments from the public and ACE will be taken into account by the Director of Environmental Protection when he makes his decision on the approval of EIA report under the EIAO.

Advice Sought

2. Members' views are sought on the findings and recommendations of the EIA report.

Need for the Project

3. The existing Siu Ho Wan Water Treatment Works (WTW) and the associated raw water and treated water transfer and distribution systems were commissioned in 1997 to provide treated water capacity of 150,000 m³/day. It provided treated water to the Hong Kong International Airport at Chek Lap Kok and the initial phases of North Lantau New Town and Discovery Bay. In order to cope with the water demands of the developments in North Lantau New Town, northshore and north-east areas of Lantau and Discovery Bay, WSD has proposed extension works for the Siu Ho Wan WTW that comprises uprating of Siu Ho Wan WTW and the associated raw water and treated water transmission systems.

Description of the Project

4. The Project comprises the followings:

- (i) extension of the existing Siu Ho Wan WTW within the existing WTW site boundary from a capacity of 150,000 m³/day to 300,000 m³/day;
- (ii) Construction of Siu Ho Wan Raw Water Booster Pumping Station together with the associated raw water mains, E&M plants and access road;
- (iii) demolition and reprovision of the Pui O Raw Water Pumping Station;
- (iv) uprating of Pui O No. 2 Raw Water Pumping Station;
- (v) laying of two sections, approximately 2 km long, of 1200 mm diameter raw water mains at Pui O; and
- (vi) all other associated civil, building, structural, pipeworks, mechanical and electrical works.

5. The proposed Siu Ho Wan WTW Extension, which is within the existing WTW site boundary, is located next to a Sewage Treatment Plant (location of the project site is shown in Figure 1). Figure 1 also shows the location of the Proposed Siu Ho Wan Raw Water Booster Pumping Station. The demolition and reprovision of the Pui O Raw Water Pumping Station and uprating of the Pui O No. 2 Raw Water Pumping Station would take place within the existing boundary as shown in Figure 2. A proposed alignment for the duplication of two sections of the existing raw water mains at Pui O is mainly along the existing South Lantau Road, as shown in Figure 2.

6. It should be noted that only item 4(i) above is classified as a designated project under Item E2, Part I of Schedule 2 of the EIAO (i.e. water treatment works with a capacity of more than 100,000m³ per day). Therefore, the Environmental Permit, if it is to be issued, will only control the works in relation to item 4(i) above.

Consideration of Alternative Locations, Alignments and Water Treatment Process

7. Alternative sites for Siu Ho Wan Raw Water Booster Pumping Station and alignments for duplication pipeline at Pui O have been considered during the process of EIA study with a view to minimizing the environmental impacts arising from the project.

8. The preferred location of the Siu Ho Wan Raw Water Booster Pumping Station as shown in Figure 1, will achieve better environmental performance and is technically more feasible than the alternative location as it requires less site formation and slope stabilization works and brings less destruction to the surrounding natural slopes and vegetations.

9. The proposed option of raw water mains alignments at Pui O as shown in Figure 2 is preferable to the alternative alignment as it would have lower impact to habitats of particular ecological interest (abandoned agricultural land and woodland). The proposed alignment also has less visual and landscape impact and lower cultural heritage impact. In view of engineering feasibility, no private land resumption or public land rezoning would be required for the proposed alignment.

10. Regarding the primary disinfection process for the extended Siu Ho Wan WTW, ozone is recommended as the primary disinfectant rather than chlorine in the existing process. Thus, eliminating the need for additional chlorine storage.

Specific Environmental Aspects to Highlight

11. The key environmental issues identified for this project are hazards to life, landscape and visual, noise and ecology.

Hazards to Life

12. The study brief states that hazard assessment for chlorine is required if and only if there is an increase of storage and on-site transport of chlorine. The allowable storage of chlorine in the existing Siu Ho Wan WTW compound at a capacity of up to 73 tonnes was endorsed by CCPHI on 30.5.1992 during the Stage I Water Treatment Works, which has already duly taken into account future extension of the Water Treatment Works up to 300,000 m³ per day.

13. The current EIA report only proposed a capacity of 300,000 m³ per day for the WTW. In addition, with the recommended water treatment process adopting ozone for primary disinfection instead of chlorine, the chlorine storage would not exceed the designed capacity endorsed by CCPHI. Therefore, no hazard assessment for the operational phase is required in accordance with the study brief.

14. A Hazard and Operability (HAZOP) study was conducted to identify additional chlorine hazards initiated by construction activities. Mitigation measures, such as monitoring and inspection of chlorine dosing facilities, management of material and personnel, investigation and training, were proposed for inclusion in the contract document and the Safety Plan and Emergency Plan.

Landscape and Visual

15. The proposed Siu Ho Wan WTW Extension and the Raw Water Booster Pumping Station (1 storey structure) would have potential landscape and visual impact. Also, at Pui O, the re-construction of Pui O Raw Water Pumping Station would have

potential landscape and visual impacts.

16. To reduce the landscape and visual impacts, the recommended mitigation measures include sympathetic design of structures and design of external appearance, reinstatement of planting on disturbed land, and compensatory planting will be implemented.

17. In general, the landscape and visual impacts in both Siu Ho Wan and Pui O sites are considered to be acceptable with mitigation measures.

Noise Impact

18. Construction noise impacts up to 85dB(A) from laying of raw water mains, demolition and reprovision of Pui O Raw Water Pumping Station if unmitigated, would exceed daytime noise criterion at the NSR (75dB(A)) for residential NSR or 70/65dB(A) for school). Mitigation measures such as silenced PME and movable noise barriers would reduce the noise impact to 74dB(A) which falls within the noise criterion.

19. No operational noise exceedance at the NSRs was anticipated (predicted noise level at 45dB(A) vs night time criterion of 45dB(A)) with the installation of acoustic louvers.

Ecology

20. Laying of raw water mains at Pui O would largely follow the south Lantau Road. However, both ends of the alignment would encroach into woodland. Vegetation clearance for excavation of a 2.5 m wide trench would impact approx. 0.1ha of woodland and the total extent of the surrounding works area within woodland would be 0.4ha. Individuals of *Pavetta hongkongensis* and *Aquilaria sinensis*, if affected by the works, would be transplanted to a safe location within the same habitat. With the above mitigation measure implemented, minimal ecological impact at Pui O site area is anticipated.

Environmental Monitoring and Audit (EM&A)

21. An EM&A programme has been proposed in the EM&A Manual submitted together with the EIA report and included a detailed Implementation Schedule. The EM&A requirements will be enforced as Environmental Permit conditions.

Public Consultation

22. WSD has made the EIA report, EM&A manual and Executive Summary

available for the public comment under the EIAO on 25 October 2004. Members will be briefed at the meeting about any comments received from the public.

Environmental Protection Department
October 2004